



L.B. Foster Company

DIRECT FIXATION RAIL FASTENER

Model F21R4/F21R4A-115RE

The Model F21R4/F21R4A-115RE direct fixation fastener has been designed, tested, and supplied to the New York City Transit Authority. Based on original design requirements, this product provides the following functions:

- > Secures 115 pound RE rail to wood tie track
- > Stabilizes vertical and lateral rail movement
- > Controls longitudinal rail movement
- > Provides track noise and vibration dampening
- > Electrically isolates rail from track bed
- > Utilizes non-threaded rail hold down spring type clips
- > Available in 2 and 4 anchor bolt configurations

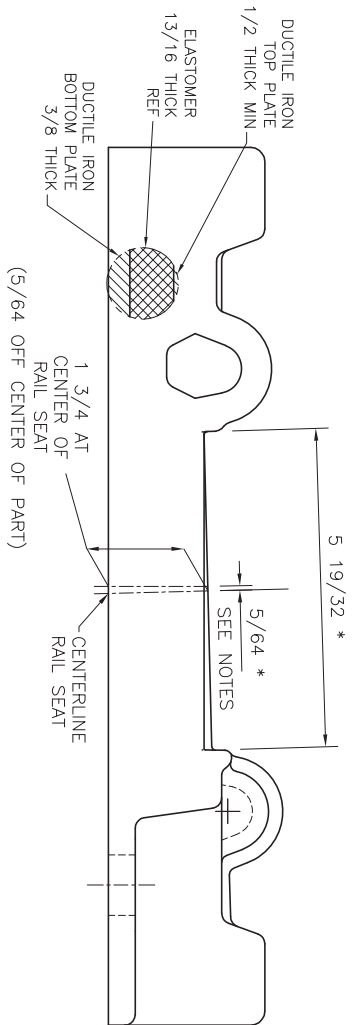
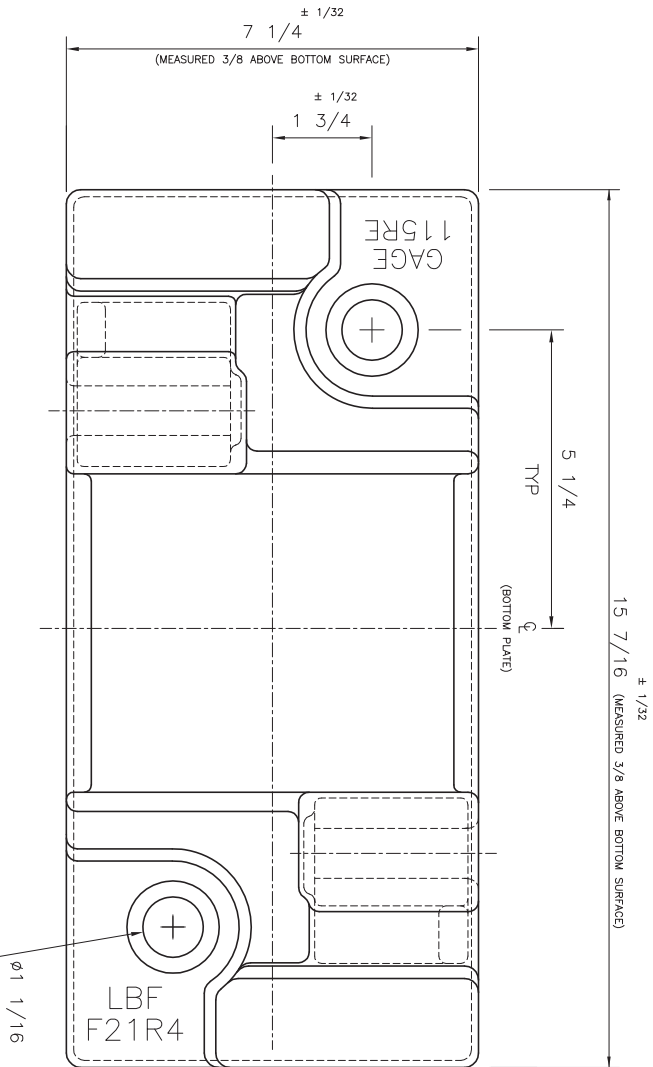
This fastener design has successfully completed extensive Design Qualification testing to the approval of New York City Transit. The test program was designed to determine the fastener response to various load environments and electrical applications. Based on the results of the test program, this fastener provides the following characteristics:

- > Vertical stiffness of approximately 125,000 pounds per inch deflection as determined by "static" loading between a range of 5,000 to 10,000 pounds per fastener body loading.
- > Applied vertical uplift forces of 4,000 pounds per fastener with minimal fastener to tie or rail separation.
- > With a "static" vertical force of 19,000 pounds and lateral force of 6,000 pounds per fastener body, the rail head movement is less than 0.350 inches. The lateral base stiffness during application of this load per fastener, is approximately 22,000 pounds per inch deflection.
- > Resists repeated combined vertical and lateral "dynamic" loading in excess of 3,000,000 cycles with cycles consisting of:
 1. Vertical force of 12,000 pounds per fastener body and a simultaneous lateral force of 2,500 pounds per fastener body (towards "field")
 2. Release of all load to near zero
 3. Vertical force of 12,000 per fastener body and a simultaneous lateral force of 5,000 pounds per fastener body (towards "gage")
 4. Release of all load to near zero
 5. Sequence of 1 through 4 performed 95% of loading cycles
 6. Vertical force of 19,000 pounds per fastener body and a simultaneous lateral force of 5,000 pounds per fastener body (towards "field")
 7. Release of all load to near zero
 8. Vertical force of 19,000 pounds per fastener body and a simultaneous lateral force of 5,000 pounds per fastener body (towards "gage")
 9. Release of all load to near zero
 10. Sequence of 6 through 9 performed 5% of loading cycles

- > Longitudinal rail slippage occurs between 2,500 and 3,500 pounds.
- > Withstands a minimum of 15,000 volts dc without damage.
- > Electrical resistance at 600 volts (dc) greater than 10 megohms (dry).
- > Electrical impedance at 10 volts (ac) at 60 Hz greater than 10 megohms after 6 hours of water conditioning.

The above performance characteristics are provided for informational purpose only and are based solely on previous testing. Actual performances may vary from those stated above.

Variations to Model F21R4/F21R4A-115RE can be made to accommodate various custom requirements. For more information concerning this Direct Fixation Fastener model or other product needs, please contact us through www.lbfoster.com, transitproducts1@lbfoster.com, or call us at our Suwanee, Georgia office at (678) 926-5200.



ELEVATION

PLAN

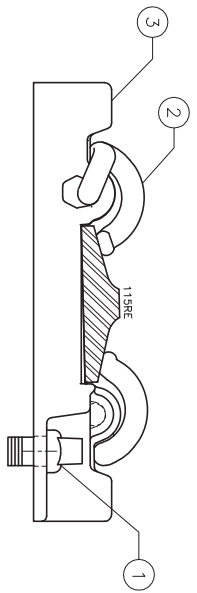
GENERAL INFORMATION

THE FASTENER BODY CONSISTS OF DUCTILE IRON, 65-45-12, TOP AND BOTTOM PLATES FULLY "VULCANIZE" MOLDED WITH AN ELASTOMER COMPOUND INTO A SINGLE FASTENER UNIT. THE MOLDED ELASTOMER COVERS THE ENTIRE PLATE SURFACES WITH THE EXCEPTION OF THE RAIL SUPPORT AREA, THE BOTTOM BODY SUPPORT AREA AND THE MATING SERRATED ANCHOR AREA WHICH PROVIDES 1/8 INCREMENTAL ADJUSTMENT TO A FULL ± 1/2 INCH BODY MOVEMENT.

AS A RESULT OF THE PLATE AND ELASTOMER MANUFACTURING PROCESS, THE FASTENER BODY PROVIDES EXCELLENT NOISE AND VIBRATION CONTROL, ELECTRICAL ISOLATION AND CORROSION RESISTANCE.

BILL OF MATERIALS

ITEM	PART NO.	DESCRIPTION
1 (2 EA)	TBD	ONE INCH SCREW SPIKE MATERIAL AND LENGTH AS REQUIRED
2 (2 EA)	10-334-002	RESILIENT SPRING CLIP, #2055 (RIGHT HAND) PANDROL PROPRIETARY STEEL 5160 MODIFIED
3 (1 EA)	00-041-269	FASTENER BODY MODEL F21R4-115RE



ASSEMBLY

(0.5x)

NOTES

- ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
- USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION, UNLESS OTHERWISE NOTED.
- GENERAL TOLERANCE ± 1/32

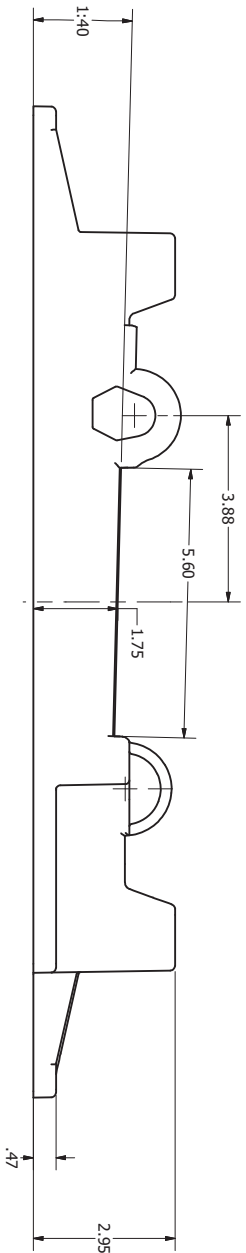
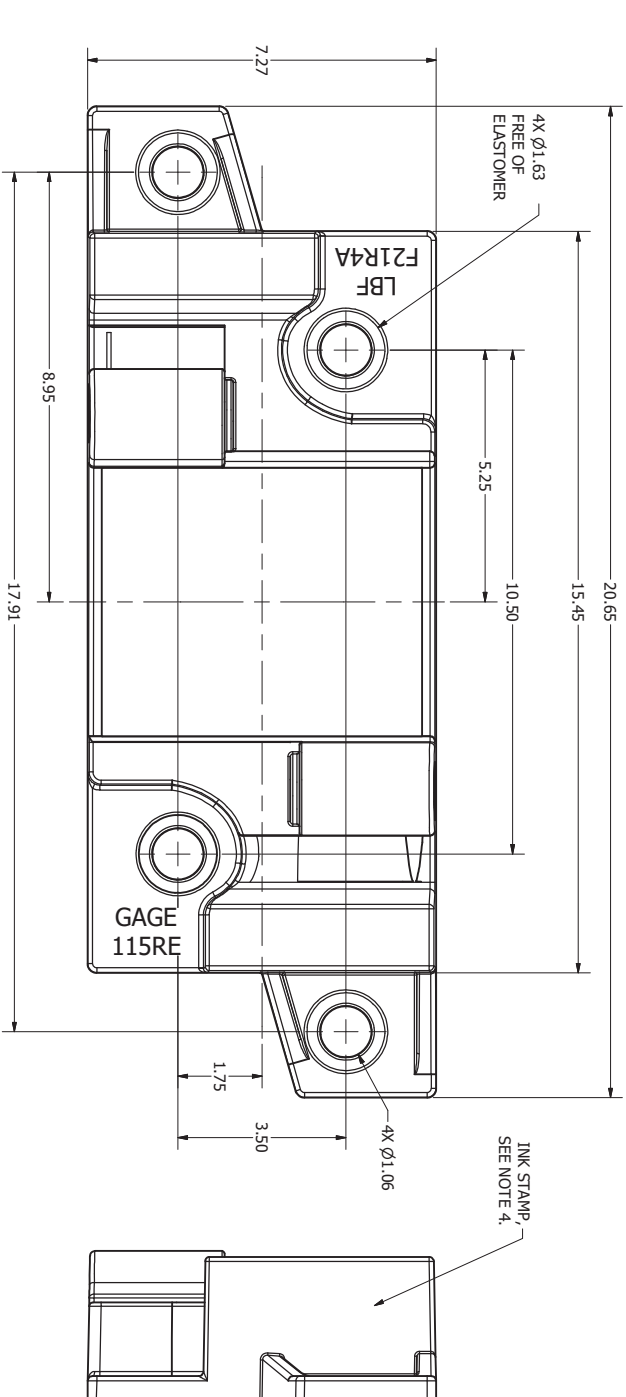
NOT TO BE DIRECTED, USED OR DUPLICATED FOR PROCUREMENT, MANUFACTURE OR ANY OTHER PURPOSE EXCEPT AS AUTHORIZED, IN WRITING, BY TRANSIT PRODUCTS DIVISION.

PROPRIETARY

LBFoster © Transit Products Division Rail Business Suwanee, Ga 30024	
TP	
TITLE	LBF FASTENER MODEL F21R4-115RE
FOR	INFORMATIONAL PURPOSE ONLY
DESIGN	TRANSIT PRODUCTS
DWG BY	RLA 09.12.06
DATE	
APPRO	
SCALE	NONE
DWG NO.	DF-037
CONTRACT	
REF	00-041-269
REVISIONS	DESCRIPTION
BY	

NOTES

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
2. USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION.
3. ALL DIMENSIONS ± .03 UNLESS OTHERWISE SPECIFIED. ALL ANGLES ± 1° UNLESS OTHERWISE SPECIFIED.
4. INK STAMP: ELASTOMER BATCH # & HEAT #, TOP PLATE CODE & BOTTOM PLATE CODE.
5. FLASH EXTENSION PER RMA T. 125.



LB Foster® TRANSIT PRODUCTS DIVISION Rail Business SUWANEE, GA. 30024			
TITLE MODEL F21R4A FASTENER, 115RE			
FOR INFORMATIONAL PURPOSES ONLY			
DESIGN	TRANSIT	REVISIONS	BY
DWG BY	SSF 01.27.21	DATE	
APPROV		DESCRIPTION	
EST. #	N/A		
DWG NO.	DF-163		
CONTRACT			
REF	00-041-392		

PROPRIETARY

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